

Climate Change in Regional Australia: Social Learning and Adaptation

Edited by

John Martin, Maureen Rogers and Caroline Winter



Victorian Universities Regional Research Network Press
Ballarat, Australia



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Published in 2009 by
VURRN Press Inc.
PO Box 691
Ballarat, Victoria 3353
Australia
www.vurnn.com.au/vurnnpress

National Library of Australia
Cataloguing-in-Publication Data
Climate change in regional Australia : social learning and adaptation / edited by J.
Martin, M. Rogers and C. Winter.

p. cm.

Includes index.

ISBN 978-1-876851-36-1

1. Climatic changes -- Social aspects -- Australia. 2. Climatic changes -- Australia --
Case studies. 3. Social learning -- Australia. I. Martin, John. -- II. Rogers, Maureen. -
- III. Winter, Caroline.
363.738740994 - dc22

ISBN 9781876851361

Printed and bound by McPherson's Printing Group
Maryborough Victoria 3465 Australia

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Acknowledgements

This book is the result of a workshop held in 2008 funded by the Academy of Social Sciences in Australia. We are grateful for the Academy's continuing support with our work focussing on social issues in regional Australia. In particular we would like to acknowledge the support provided by Dr David de Vaus FASSA who took the time to participate in the workshop and to provide valuable feedback on the ideas contained herein.

To Professor Raymond Harbridge, Dean of the Faculty of Law and Management at La Trobe, thank you for your continuing support with our work at the Centre for Sustainable Regional Communities and with the funding support provided to ensure the publication of this book.

To the authors who have revised their contributions based on reviewer comments we also thank them for the thought and effort that has gone into their work. To my co-editors Maureen Rogers and Caroline Winter thank you for your excellent work in ensuring each chapter was properly considered and providing helpful feedback to our authors. I have enjoyed working with you and look forward to similar projects in the future.

Associate Professor Jerry Courvisanos is an excellent general editor for VURRN Press. We value his comments across all aspects of the production of the book making sure it is a comprehensive and relevant text. Tara Beattie assisted in the artwork for the book cover and we thank her for her artistic contributions.

To my colleagues in the CSRC, Bradley Jorgensen and Quentin Farmar-Bowers thank you, not only for your chapter contributions, but for the way in which you have participated in the discussion about how best to present the ideas found in the chapters contributed by our authors.

Finally, to our research assistant Barbara Beattie we owe our sincere thanks. Barbara has worked tirelessly on this book over the last twelve months, in between all the other demands on her time, to bring the book to publication. We thank her deeply for the energy, initiative and good sense. She is an excellent colleague.

John Martin
November 2009

Chapter 1

Introduction

John Martin, Maureen Rogers and Caroline Winter

Climate change, and what to do about the impacts, has now become common place in the social and political debate in Australian society. Governments, at all levels, are grappling with what Professor Ross Garnaut calls a “diabolical” policy problem (Garnaut, 2008). He suggests it is diabolical because ‘it is uncertain in its form and extent, rather than drawn in clear lines. It is insidious, rather than directly confrontational. It is long term, rather than immediate in both its impacts and its remedies’. These characteristics of climate change are a paradox, according to Lord Anthony Giddens

since the dangers posed by global warming aren’t tangible, immediate or visible in the course of day-to-day life, however awesome they appear, many will sit on their hands and do nothing of a concrete nature about them. Yet waiting until they become visible and acute before being stirred to serious action will, by definition, be too late (Giddens, 2009, p. 2).

This book provides examples of communities stirred into climate change action because they are, in many cases, feeling the impacts of such change. Along with chapters that set the scene for climate change action in Australia they show how people in communities, often with government support, but not always, can take action and have a real impact on the lives of people today and in to the future.

These chapters were initially presented as conference papers at an Academy of Social Sciences in Australia funded workshop in Bendigo, central Victoria in 2008. Each author was presented with feedback on their presentation, asked to submit a draft chapter to the editors who provided feedback to authors for presentation in this book.

We did not, at our workshop, give time to discuss the science of climate change and the degree of human induced climate change. Rather we accepted that communities are experiencing climate change, increasing dryness in south eastern Australia being the most

predominant impact (Intergovernmental Panel on Climate Change 2007, p. 50), and asked our workshop participants to provide case studies of communities working together to address these impacts. We also asked them to frame their discussion in terms of social learning theory as articulated by Niels Röling (2002) and applied by Keen, Brown and Dyball (2005). Röling presents a theory of social learning that

tries to build an understanding of collective human behaviour that goes beyond the emergent property of individuals pursuing maximum utility. It takes the position that sustainable society, be it at the local or global level, *emerges from interaction*. A sustainable society requires recognition of interdependence. It is built on conflict resolution, and management of social dilemmas and on negotiated agreement. It must facilitate social learning. It requires institutions built on reciprocity and trust. Most of all, a sustainable society must be capable of concerted action (Röling, 2002, p. 26).

Keen, Brown and Dyball (2005) provide a framework within which we can analyse the social learning approach presented by Röling. They identify five 'braided strands of social learning': reflection; systems orientation; integration; negotiation; and, participation (Keen et al., 2005, p. 8). They present social learning as a process of 'iterative reflection' which happens in all social settings as people share experiences and insight. Systems orientation and systems thinking 'takes into account multiple processors that can affect learning processes including feedback, boundary setting, communication and uncertainty' (Keen et al., 2005, p.10). Given the uncertainty of future climate change impacts Keen, Brown and Dyball advocate 'an openness to new relationships and fresh connections' (Keen et al., 2005, p. 12). As communities do not always agree on the issues before them negotiation and collaboration are essential social skills. Finally, participation and engagement must be widespread if there is to be genuine learning across the community. Keen, Brown and Dyball's contribution has been to operationalise Röling's theory of social learning such that the authors in this book could readily analyse their case study in terms of this theory.

At our ASSA workshop we asked presenters to address how people understand climate variability and adopt appropriate risk management and adaptation strategies. The authors in this book provide different perspectives on this issue which we believe provides insight into the

nature of and need for a greater emphasis on social learning to address the diabolical policy problem that is climate change. We have structured the order of chapters such that anyone interested in working with their community to address climate change impacts will get insights from our authors about how to apply a social learning approach. We have grouped the chapters around the themes of policy, communities and governance, farming, economics and water. Below we provide an overview of each chapter to guide the reader and in the Conclusion we draw out the common themes and principles that support a social learning approach to climate change adaptation.

The Policy Setting

In reviewing the development of climate change adaptation Brian Head argues that climate change policy and practice should pay as much attention to adaptation as it does to the dominant policy of mitigation. His view is that as mitigation strategies are negotiated and implemented society will have to develop adaptation strategies to cope with an increasingly volatile and uncertain climate. He outlines the extent of likely impacts, which are considerable when we consider biodiversity and ecological systems, water resources, primary industries, human health, coastal vulnerability, human infrastructure and disaster management. Head reviews a number of policy initiatives that have emerged since the Ecologically Sustainable Development policy framework in the 1980s, and more recently, the UN Framework Convention on Climate Change which sponsored the International Panel on Climate Change research.

Head outlines the responses of Australia's three levels of government to climate change, being a mix of mitigation and adaptation, with an emphasis on the local level. He clearly shows how policy has evolved, and continues to do so, through political and social learning processes. This chapter sets the scene for the myriad of approaches to climate change through social learning and adaptation outlined in this book.

Tim Smith argues that our ability to adapt to climate change, in the face of unresolvable uncertainties, is going to require of us all, a great deal of wisdom. While life itself is perpetually uncertain, he suggests we tend to expect truth, facts and certainty to be the only basis for decision-making. However, misplaced certainty about the absence of

harm has often played a key role in delaying preventative action, reducing our ability to ‘act wisely in a timely manner’ in the face of environmental risk. This chapter by Smith questions the way we use science as the source of proof and the provider of certainty. According to Feynman (1990, p. 245) scientists take for granted that nothing is certain and that ‘...scientific knowledge is a body of statements of varying degrees of certainty – some most unsure, some nearly sure, but none absolutely certain.’ To be unsure is perfectly consistent with the philosophy of science, but not necessarily so politically and culturally. It is the legal system, management and society generally that cannot cope with the open-endedness of acceptable uncertainty. Smith explores the role of social learning approaches to understanding and interpreting climate change science, such that knowledge, and its inherent uncertainties, is transformed into wisdom and action.

Margaret Alston’s chapter on Gender and Climate Change illuminates the physicality of social power by describing how gender-biased discourses can negatively effect the very survival of women. Alston’s argument is clear: men and women do and will experience the effects of climate change differently. In the event of natural disaster we know that women are more likely to die than men. In Australia, the effects of drought, access to water and farm incomes are experienced differently by men and women. Climate change will create a number of problems relating particularly to food production and security, water access, health, and large-scale movements of people. Alston reflects upon the systemic gender bias of human values, illustrating how women in different geographic regions and cultural backgrounds around the world will experience the impacts of climate-change in unique ways. Alston calls for explicit acknowledgement of these differences in any policy development while outlining the important of social learning processes in identifying the specific needs of women.

Communities and Governance

John Fien, Ralph Horne and Susie Moloney report on their research into carbon neutral communities (CNC) and the challenges for governments and communities in achieving this outcome. Their research into community interest in reducing GHG emissions suggests there is a great deal of individual interest in moving toward carbon neutrality.

However, they recognize the need for businesses, institutions and individuals to act in concert for this to happen. They argue that ‘an integrated policy approach, which addresses the wider realm of community and social practice, and institutional capacity, is essential if we are to create carbon neutral communities’. It is through social learning processes that such integration is made possible.

Martin Mulligan, Yaso Nadarajah, Jodi-Anne Smith and Yael Zalchender provide an excellent example of social learning through the Hamilton community action process. This chapter reflects on the way a community came together to create a vision of possible future scenarios. Through story telling and narratives, the community was able to explore creatively a vast array of directions that their community might take, as a consequence of climate change, including shifts in population demographics to include an increase in ethnic diversity. The narratives enabled people to ‘free-wheel’ with their ideas of what the future could look like, how that differed to the present, and how the community could respond. It is a reflective approach which created a great deal of fun and community interaction as individuals came up with streams of thought which were fresh and often times provocative. This process also enabled the community to think more strategically - stretching their ideas about the opportunities that may arise. The process demonstrates well how creative approaches can engage the hearts and minds of people, which is an essential precursor to imaginative and innovative outcomes

Kevin O’Toole and Anne Wallis review the development of Agenda 21 and other international initiatives focused on local government and community-based approaches to sustainable development. They highlight the common theme that these schemes all call for local ownership. They then go on to discuss the debate as to whether this is possible. These schemes have now been in operation for nearly two decades and are widespread. As such they have currency in many local institutions as they address wide ranging sustainability issues. O’Toole and Wallis report on research undertaken in south west Victoria, exploring progress towards the transformation of local governance - where the social, economic and environmental pillars of sustainability are fully integrated. Findings from four municipalities indicate that while they share common sustainability values, the integration of social,

economic and environmental factors into one core notion of sustainability is still not embedded in the consciousness of local communities and local institutions as reflected by their actions.

Farming Communities

Ian Gray, Geoff Lawrence and Peter Sinclair highlight the many challenges facing the agricultural sector in Australia as climate change starts to have an impact. They point out the many divergent views, perspectives and conflicting agendas that also exist as a hindrance to tackling the issues of climate change in a progressive and open minded way. Unresolvable uncertainty is a fundamental factor in dealing with climate change and it will also be the source of great anxiety and stress. Gray and Lawrence express concern for an individuals' ability to take the necessary adaptive steps, largely because vested interests will be interpreted 'within their own discursive environments'. The personal costs of change may simply be too great. Having pointed out all of these hurdles facing the agricultural sector, this chapter serves to highlight the critical need for social learning processes to be implemented to assist rural communities to share the burden of change, new knowledge development and risk assessment.

Aysha Fleming and Frank Vanclay draw on Foucault's argument that power and knowledge were interdependent, and that each constructed the other to create 'truth'. This being the positive and productive nature of power and knowledge, Foucault showed how it was operationalised through the mundane practices of daily life. Fleming and Vanclay argue that the very nature of power and knowledge needs to be made explicit, demonstrating this by focusing on the resistance of farmers' resistance to discourses on climate change. They point out that each discourse portrays climate change in a particular way, which then determines the kinds of possible solutions. More importantly some discourses dominate society and their effect is to privilege some solutions and deny others. For example scientific discourse creates a focus on individual action and government led solutions. Fleming and Vanclay show why farmers may have 'good reason' to be skeptical of new practices being promoted by scientific entities because they do not incorporate the knowledge within which farmers' work. They conclude that no single discourse is able to provide for the variation in solutions that climate change demands.

Multiple discourses, as found in the social learning process, can allow for communication leading to action and solutions. Like Alston, Fleming and Vanclay believe that climate change will not impact the world equally and multiple approaches are needed. The scientific, top down, approach has an underlying assumption of individualism as demonstrated through the Queensland water crisis management process described by Philippa England in Chapter 19.

According to Quentin Farmer-Bowers, farm families provide the raw materials upon which our modern societies depend - providing a foundational mechanism for social decision-making, growth and adaptation to problems brought about by climate change. Evidence from his field work indicates that the decision-making processes used in farming families can be extended to the wider community to provide an alternative to individualism approaches that dominate western society. Farmer-Bowers argues that farm families are in a unique position in being able to deal with negotiation and decision processes that essentially embody social learning principles. This chapter explores five decision making concepts - 'Motivation stories' which involve family end-values; 'Personal Career Paths', which relate to the ways in which individuals can seek personal satisfaction within the family; 'Decision-Systems' which explain how the family negotiates its decisions; and how the family creates 'Opportunities' and interprets them through various lenses. Farmer-Bowers discusses this model in the context of the social learning principles upon which this book is based.

Susan Brumby provides a case study, through the Sustainable Farm Families program, where social learning principles have been enacted and subsequently evaluated with measurable outcomes. The Sustainable Farm Families program provides an excellent example of how a social learning approach to increasing awareness and actual health outcomes can be directly monitored and evaluated. Engaging women and men in open discussions about their own health, resulting in both measurement and action designed to improve individual health and well-being is a significant challenge for rural health workers. Through the application of social learning principles, this project clearly demonstrates its effectiveness in improving the health status of farming families in rural communities.

John Martin and Eben Quill provide an example of a regional community-based organisation responding to climate change. They report on a process of engagement between La Trobe University and the Elmore Field Days Committee where the aim was to actively reduce the greenhouse gas emissions associated with this large event. The Elmore Field Day draws some 40,000 people from SE Australia to an event focused on demonstrating new products and services available to the agricultural industry. The Centre for Sustainable Regional Communities at La Trobe University explicitly set out to engage the Field Days Committee in the '*CO₂ and You*' greenhouse gas reduction strategy, which has now become a permanent feature of the Elmore Field Day annual event. Martin and Quill show that such engagement was not a straightforward process. It required everyone to act with integrity, and in good faith, to achieve the desired outcome. Martin and Quill report on the project's success and how the process was facilitated involving many people across multiple organisations.

Economics

Bradley Jorgensen shows how the 'contingent valuation method', which emerged in the early 1990's, is used in dealing with the complex issues of environmental risks and their inherent uncertainties. The CV method was designed to establish economic value for environmental services that were typically outside market-based evaluation. In the context of climate change, where the environmental risks and unresolvable uncertainties are many, a valuation of environmental protection (and the reduction of risk) contingent on peoples' willingness to pay, may not provide an effective mechanism for the revolutionary change in behaviour that is required. Jorgensen's chapter explores critically the role of the 'contingent valuation method' in assessing environmental impacts of climate change, and locates its usefulness within social learning praxis.

Jerry Courvisanos develops a broad national innovation policy framework for ecologically sustainable development for regional Australia. He argues that social learning is the 'adaptive mechanism' that enables innovation policy to become operational. Courvisanos proposes an economic framework 'based on economic activity that is satisficing rather than optimising' to address the ecological concerns of

the future. He provides an extensive review of the economic literature in support of this view. In his 'eco-sustainable framework' Courvisanos argues for a strong connection between 'the ecosystem and its links to the economy'. This is underpinned by a 'social learning approach that is based on a 'bottom-up' decentralised development of customs and norms around sustainable development'. His chapter is rich in its analysis of contemporary economic theory and debate on how best to structure an ecologically sustainable society.

Caroline Winter and Elspeth Frew remind us that perceptions of having a holiday usually mean travelling away from one's home to do so. This means that the greenhouse gas emissions related to tourism is significant. They describe the social nature of tourism and 'argue that a re-definition and change in attitude towards leisure experiences can help redirect the focus for some realistic solutions toward a low carbon society'. One answer is to have a holiday in your hometown, or region at least, reducing emissions by travelling shorter distances. A social learning approach can assist to make holidays at home a 'personally positive and preferred alternative to going away'. Winter and Frew review the tourism literature noting how important marketing and advertising campaign are in deterring the decisions Victorians make about where they will holiday next. Tourism Victoria's highly successful Jigsaw campaign, launched in 1993 has seen more Victorians holiday within their state than ever before. This is a combination, they suspect of cost, but also a reflection of the great amenity and the fact that many Victorians have now taken holidays in their home state and that the broader community view is that it is okay to do so.

Water

Francine Rochford discusses the changes to water policy in Victoria and the dilemma facing irrigators and irrigation communities responding to policies associated with adaptation strategies employed at the governmental and intergovernmental level. Rochford argues that their capacity to adapt to climate change is potentially challenged by policy change itself. Her view is that water policy change need not involve the public which risks compromising the social learning that has been built up in irrigation communities since their development. Rochford presents the view that stakeholders in water harvest, distribution and

use are interdependent and their shared inter-subjective positions enable a 'social construction' of water problems'. Thus the idea that water policy designed to address climate change that does not recognise this social construction through social learning has the potential of having a negative impact on the very thing it is trying to achieve.

Steve McEachern examines community responses to a reduced water supply, as is occurring in regional Victoria, and its implications for social and economic change. Drawing on the findings of a number of research projects completed by the Centre for Regional Innovation and Competitiveness in recent years, McEachern reports on regional urban water use (from cities and towns out of Melbourne) and the impact this has on the Victorian population as a whole. He reviews the policy context of urban and rural water use noting that governments are reluctant to use price mechanisms to influence household water consumption, preferring voluntary behaviour change strategies. McEachern reflects on the extensive models of social change over the last fifty years noting that readiness to learn or change are key precedents to action. He provides, as an example, the Water in Drylands Collaborative Research Program (WIDCORP) sponsored survey of small towns in the Wimmera region of Victoria. This research suggests that people in these communities will need greater personal experience with the implementation of change in order to understand how it affects their personal behaviour. A social learning process affords this behaviour change.

Scott Baum and Stephen Horton address the growing concern of policy makers about the impact of extreme climatic events on human settlements. They highlight the negative impacts on lives and livelihoods of hurricanes and floods in the US and heat waves in Europe and the UK. With predictions of more such extreme events in the future, Baum and Horton have developed a technique for analysing individual and community vulnerability to extreme climatic events. Their chapter presents an analysis of the physical and social geography of vulnerability to flood and heat wave conditions in regions of south eastern Queensland. The outcome is an index of social vulnerability to extreme events which can be mapped at the community level.

Philippa England presents the results of her documentary analysis of the legal, policy and methodological framework used to solve a

domestic water crisis in south east Queensland. Over a three year period, dramatic reductions in water use were achieved through monetary incentives, education, sanctions, regulations and fines. As the crisis progressed, the decision-making moved from local to state control and became increasingly autocratic. The situation was distinguished by a number of clearly defined goals: a large degree of agreement on the need for action, a sense of urgency and a need to involve large numbers of people. Even so, participants were coerced rather than being actively involved in a learning process to change their water use behaviour. England makes the clear point that major positive outcomes were achieved in a very short period of time, but she questions the applicability of the mechanisms for other situations and in the long term. The imperative of climate change demands that we incorporate a multitude of processes and mechanisms for managing change, and clearly, an autocratic top-down response can provide successful outcomes. The key message however, is that in the uncertain scenarios of global climate change, a range of approaches is required, rather than a dependence upon a narrow range of mechanisms. While Fleming and Vanclay argue that dealing with climate change will demand that multiple discourses be accepted, England illustrates that the dominant discourse which supports a command and control, top down approach is useful in some situations. Problems are not caused by particular approaches, but by the dominance which social power exerts to privilege some discourses at the expenses of others and ultimately limiting the possibility of different solutions.

Clare Lade notes that western societies have established political and economic boundaries with far less consideration for the ecological communities upon which they ultimately depend and we are now beginning to acknowledge the difficulties created by these human defined entities. Lade's chapter provides empirical evidence for the benefits of cooperative clustering of tourism business using four case studies of regions along Australia's Murray River. This chapter promotes a radical change to the business-as-usual approach of individualism and competition. The study identified key attributes which can enable a region to establish a successful competitive advantage for its businesses. Elements for successful clusters included strong local leadership, co-operation, strong cluster boundaries and industry

structure. The barriers included a reluctance to share information, self interest, lack of trust and lack of interest. Importantly Lade found that in the successful clusters their mutual dependence better prepared them to help in the formation of new businesses and increase capacity for innovation.

Conclusion

The nineteen chapters that make up this collection reveal the diversity of research being done on climate change impacts by Australian academics, and we recognise this is but a small percentage of the work that is going on in this regard. In our call to authors we encouraged them to consider their case in terms of social learning theory and how this approach assists in adaptation to climate change impacts. Some of these chapters do this explicitly while others provide more of a focus on measuring the impacts of climate change. Together we believe they are a valuable collection on adaptive strategies where participation and engagement are essential processes for individuals and communities to survive the ravages of sudden and dramatic climatic events, and those slow and pervasive events such as the drying environment found in many parts of south eastern Australia.

In the Conclusion to this book we attempt to distill the common threads and key learnings for policy makers, community leaders and individual citizens as we develop climate change adaptation strategies together over the next one hundred years. This is, at least, assuming humankind can manage the biggest adaptation challenge of all, mitigating greenhouse gas emissions such that global natural systems in which we have evolved can be stabilised at levels which assure the survival of the human species and all of the other species with which we inhabit this Earth.

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